

Claims

What is claimed:

1. (Original) The broad method of respiratory therapy wherein the care recipient's breathing cycle is consciously synchronized with their heart rate variability cycle for purposes of achieving coherence of the their heart rate variability cycle for purposes of achieving optimal cardio-pulmonary functioning and consequent optimal therapeutic efficacy and efficiency.
1. (Revised) The broad method of respiratory therapy wherein the care recipient's breathing cycle is consciously synchronized with their heart rate variability cycle during the application of therapeutic gas.
2. The broad method of respiratory therapy wherein synchronization of the care recipient's breathing cycle with an external timing reference is achieved for purposes of synchronizing their heart rate variability cycle with their breathing cycle for purposes of achieving coherence of their heart rate variability cycle for purposes of achieving optimal cardio-pulmonary functioning and consequent optimal therapeutic efficacy and efficiency.
2. (Revised) The broad method of respiratory therapy wherein the care recipient's breathing cycle is synchronized with an external timing reference during the application of therapeutic gas.
3. The broad system of claim 1 wherein synchronization of the care recipient's breathing cycle with their heart rate variability cycle is achieved for purposes of achieving optimal cardio-pulmonary functioning and consequent optimal therapeutic efficacy and efficiency.
3. (Revised) The broad system for delivering therapeutic gas to a care recipient while synchronizing breathing and gas flow with the heart rate variability cycle consisting of:
 - a. Electrically controlled regulator
 - b. Heart beat detector
 - c. Heart rate variability monitor
 - d. Practitioner visual indicator
 - e. Care recipient audible, visual, and tactile indicators

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4. The broad system of claim 2 wherein synchronization of the care recipient's breathing cycle with an external timing reference is achieved for purposes of synchronizing their heart rate variability cycle with their breathing cycle for purposes of achieving coherence of their heart rate variability cycle for purposes of achieving optimal cardio-pulmonary functioning and consequent optimal therapeutic efficacy and efficiency.

4. (Revised) The broad system delivering for therapeutic gas to a care recipient while synchronizing breathing and gas flow with an external timing reference consisting of:

- a. Electrically controlled regulator
- b. Practitioner visual indicator
- c. Timing reference
- e. Care recipient audible, visual, and tactile indicators

5. (Original) The specific method of claims 1 and 2 wherein gas flow is synchronized with the heart rate variability signal of the care recipient or an external timing reference such that gas is delivered during the inhalation phase of the breathing cycle and is suspended during the exhalation phase of the breathing cycle thereby reducing gas consumption.

5. (Revised) The system of claim 3 wherein inspiratory gas flow is governed by an electrically controlled regulator that reciprocates in synchrony with the heart rate variability cycle.

6. (Original) The specific system of claim 5 wherein gas flow is determined by an electrically controlled regulator that is controlled by a heart rate variability monitor, or alternatively, a timing reference.

6. (Revised) The system of claim 4 wherein inspiratory gas flow is governed by an electrically controlled regulator that reciprocates in synchrony with an external timing reference.

7. (Original) The specific system of claim 6 wherein a reciprocating armature forms the basis of the electrically controlled regulator and is controlled such that its operation and consequent gas flow through the electrically controlled regulator is synchronized with the breathing cycle of the care recipient.

7. (Revised) The systems of claims 5 and 6 wherein an electrically controlled reciprocating armature modulates gas flow.

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8. (Original) The system of claim 7 wherein the reciprocating arm of the electrically controlled regulator rests at its center point when heart rate variability monitor or timing reference are powered down or removed from the system, thereby facilitating maximal flow of gas through the system.
8. (Revised) The system of claim 7 wherein the reciprocating armature normally rests at its center point, thereby facilitating full gas flow.
9. (Original) The specific system of claim 5 wherein a visual indicator representing the degree of gas flow is provided to the respiratory care practitioner for purposes of gauging the synchrony of the recipient's breathing cycle with the delivery of gas.
9. (Revised) The system of claim 5 wherein a visual indicator indicates gas flow for the care practitioner.
10. (Original) The specific system of claim 6 wherein the timing and logic for controlling electrically controlled regulator is specified.
10. (Eliminated)
11. (Original) The instructive method of claim 1 wherein a respiratory care practitioner and/or care recipient is instructed in the use of the preferred embodiment of the invention employing the monitoring of heart rate variability.
11. (Revised) The instructive method of claim 1 employing heart rate variability monitoring.
12. (Original) The instructive method of claim 2 wherein a respiratory care practitioner and/or care recipient is instructed in the use of the preferred embodiment of the invention employing a timing reference.
12. (Revised) The instructive method of claim 2 employing an external timing reference.
13. (New) The method of claim 1 wherein inhalation is facilitated during increasing heartbeat and exhalation is facilitated during decreasing heartbeat rate.
14. (New) The system of claim 3 wherein gas flow is delivered during increasing heartbeat rate and gas flow is suspended during decreasing heartbeat rate.
15. (New) The systems of claims 3 and 4 wherein feedback to the care recipient is provided in audible, visual, and tactile form.

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16. (New) The system of claim 7 wherein peak gas flow occurs at mid-inhalation.